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(54) CAST GLOSSY PAPER FOR INK JET RECODING AND MANUFACTURING METHOD THEREFOR

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a cast glossy paper for ink jet recording, on which a high quality recording image, especially of a high recording image density can be provided especially with an ink jet dye ink on a cast-coated paper having a high evenness and lustrous properties, and its manufacturing method.

SOLUTION: This cast glossy paper for ink jet recording is a cast-coated paper, in which an ink accepting layer made of a pigment and a transparent binder is provided on at least one side of a base paper and a cast glossy layer including a pigment for giving gloss and a binder is formed on the ink accepting layer. The cast glossy layer is a coating surface solidifyingly treated with a coagulating agent. The cast-coated paper is produced by compression-bonding the cast glossy surface under its wet state with a heated and mirror-finished metal surface. The coating weight of the ink accepting layer lies within the range of 5 to 15 g/m² and its haze is 70% or less. At the same time, the pigment in the ink accepting layer is a porous synthetic silica having a particle diameter of 2 to 15 µm.

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CLAIMS

[Claim(s)]

[Claim 1] The ink absorbing layer which consists of a pigment and a transparency binder is established in one [at least] field of stencil paper. On this ink absorbing layer, the cast gloss layer containing the pigment and binder for carrying out gloss grant is formed. This cast gloss layer is the spreading side which carried out coagulation processing using the coagulant, and it is cast coated paper which it comes to stick to the metal side of mirror plane finishing which had this cast gloss layer heated while said cast gloss layer was in the damp or wet condition by pressure. Cast glossy paper for ink jet record with which the amount of coating of the above-mentioned ink absorbing layer is characterized by being the porous composition silica whose pigment of an ink absorbing layer Hayes in within the limits of 5 - 15 g/m² is 70% or less, and is the particle diameter of 2-15 micrometers.

[Claim 2] It is cast glossy paper for ink jet record according to claim 1 characterized by being the macromolecule with high transparency with which at least one or more kinds of binders of said ink absorbing layer are chosen from PVA, PVP, gelatin, a polyvinyl acetal, an acrylic, methyl cellulose, a carboxymethyl cellulose, urethane, and polyester, and the above-mentioned binder carrying out 10-100 weight section content to the pigment 100 weight section.

[Claim 3] The maximum surface of said cast gloss layer for carrying out gloss grant is cast glossy paper for ink jet record according to claim 1 or 2 with which colloidal silica is contained, and the particle diameter is 20nm or less, and weight of the cast gloss layer is characterized by being the five to 30 section to the colloidal silica 100 weight section including one or more sorts as which the binder of the cast gloss layer is chosen from casein and gelatin.

[Claim 4] The gelation liquid which is the coagulant which carries out coagulation processing of said cast gloss layer is cast glossy paper for ink jet record according to claim 1, 2, or 3 characterized by being the water solution with which the organic cation agent was mixed, including formic-acid calcium or formic-acid zinc.

[Claim 5] In one [at least] field of stencil paper, the amount of coating is [Hayes in within the limits of 5 - 15 g/m²] 70% or less. And carry out coating of the coating liquid which consists of the pigment and transparency binder which are the porous composition silica which is the particle diameter of 2-15 micrometers, and an ink absorbing layer is prepared. After applying the coating liquid containing the pigment and binder for carrying out gloss grant on this ink absorbing layer furthermore, The cast gloss layer

which carried out coagulation processing and acquired the applied spreading side using the coagulant is the manufacture approach of the cast glossy paper for ink jet record characterized by coming to be stuck to the metal side of mirror plane finishing which had this cast gloss layer heated while it was in the damp or wet condition by pressure.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates to the cast glossy paper for ink jet record which has the outstanding ink jet record fitness and the record image concentration excellent also in especially inside, and its manufacture approach about the cast glossy paper for ink jet record, and its manufacture approach.

[0002]

[Description of the Prior Art] an ink jet recording method -- the noise -- few -- processes, such as development and fixing, -- unnecessary -- in addition -- and since full color printing can be carried out easily, it is used for various printers etc. and is spreading quickly in recent years. So, the need of an ink jet record medium is increasing rapidly.

[0003] Recently, with high-performance-izing of the printer of the ink jet method which used water color ink, property-demands, such as superabsorbency, the repeatability of a faithful dot, and a water resisting property, come to be carried out also to the sheet for [recorded], and the coat paper which prepared the ink absorbing layer on the base material has been developed.

[0004] Moreover, improvement in the further engine performance has been required of the ink jet record sheet which is a record medium with fullness-izing and spread-izing of a peripheral device, such as a digital camera and a scanner, besides high-performance-izing of an ink jet method printer. That is, the surface gloss other than ink jet printing fitness good now which applications, such as improvement in the speed of ink jet record, highly-minute-izing of a record image, and full-color-izing, make extensive is high, and the ink jet record form which has the outstanding appearance has been required. As a demand which may be added to it, also appearances and properties properties, such as gloss, a hue, and a feeling of a feel, and to be also similar to printing paper and the print sheet of a film photo have been demanded.

[0005] Generally as a high form of surface gloss, it is processing a coat paper front face for a plastics pigment in the air or the inorganic pigment of tabular or a very fine particle by calender processing after coating. The coat paper which obtained high smooth nature, and the coat paper of the type which applied the synthetic resin which has high absorptivity and the outstanding membrane formation nature, Or the cast coated paper obtained by copying the mirror plane is known by sticking by pressure and drying a humid cast gloss layer to the heating drum side which has a mirror plane.

[0006] This cast coated paper has surface gloss and smooth nature still higher than the usual coat paper by which data smoothing was carried out in coat paper front faces, such as a super calender, and is used as a high-grade print sheet also in printed matter according to the reason the outstanding printability is acquired, in many cases. However, when this cast coated paper is used as an ink jet record form, there are also some fault points.

[0007] The disadvantageous point of the some is mentioned. First, in the case of cast coated paper, although gloss is discovered by making a mirror plane drum side imprint, in order to acquire high gloss, existence of membrane formation nature matter, such as casein, polyvinyl alcohol, and urethane, must usually use it so much indispensably. However, these membrane formation nature matter can also serve as a factor to which the absorption to the coat paper of ink jet ink is checked, consequently a printing side spreads or drying [of ink] gets worse remarkably. On the contrary, although ink absorptivity will improve if the amount of this membrane formation nature matter used is reduced, a gloss value will fall.

[0008] Moreover, the Nonion nature or the anionic thing of the pigment and binder which are used for the usual cast coating is in use, in this structure, the ink of an ink jet will not fully be able to be established, consequently the waterproof defect and printing concentration of the record image section will fall.

[0009] Generally in the fall of such a waterproof defect of an ink jet record form and printing concentration, fixable [of ink] can be improved by introducing an organic cation agent into a cast gloss layer, and the above-mentioned problem can be solved to it. However, in cast coating liquid, the cationic matter will be deficient in compatibility with the release agent which is anionic, a thickener, the binder which carried out alkali denaturation, etc., and will sometimes cause thickening and condensation. Application to the cast coated paper of the cationic matter from the difficulty of preparing such coating liquid is performed by addition into coagulant liquid in many cases.

[0010] Moreover, although the approach of using metal salts, such as formic acid calcium, (for example, JP,10-6639,A) be indicate as a coagulant of cast coating liquid, it become inadequate, if there be little this amount used gelling [of the cast coating liquid to which gloss be make to give], and it become coat paper with low glossiness and printing concentration, and if many [too], deterioration of the ink coloring matter of the record image section will pose a problem. Moreover, the water resisting property of the record image section is not fully given only with such a metal salt.

[0011] Next, although a large number [the example of a report which uses organic cation agents, such as a cationic polymer,] as a coagulant of cast coating liquid, the trouble in the amount used is the same as that of a metal salt almost. If there is a unique property to a metal salt, they are the point that a water resisting property is given by the use, and the point that the color tone of the record image section accompanying increase of the amount used changes. Moreover, it is mentioned that the point which comes to be inferior in ink absorptivity with increase of the amount used as a trouble, and the part to which a water resisting property is given and the inclination for lightfastness to be inferior become remarkable.

[0012] By the above, when using an organic cation agent as coagulation liquid, also in view of the printing concentration of the record image section, a color tone, and the shelf life of the record image sections further, such as a water resisting property and lightfastness, the class and amount used other than the gelation degree of cast coating liquid must be determined.

[0013] Now, record image concentration is in a property the most fundamental also in the printing fitness of an ink jet record form, and important. However, printing concentration is conspicuous and there is still no high ink jet record form.

[0014] Now, in manufacture of the cast coated paper by this solidifying method, record

image concentration improves with the rise of the transparency of an ink absorbing layer. Therefore, even if it sees industrially selection of the binder and pigment which improve record image concentration by raising the transparency of an ink absorbing layer paying attention to the property, and constitute the ink absorbing layer as the concrete plan further, and the examination about the combination, they are meaningful.

[0015]

[Problem(s) to be Solved by the Invention] This invention offers a quality record image, the cast glossy paper for ink jet record with which high record image concentration is obtained especially, and its manufacture approach about the cast coated paper which has high smooth nature and high glossiness especially using ink jet color ink. Moreover, the cast glossy paper for ink jet record concerning this invention has strong surface reinforcement, and also has the description without an ink blot.

[0016]

[A means to solve invention] Many above-mentioned purposes of this invention establish the ink absorbing layer which consists of a pigment and a transparency binder in one [at least] field of stencil paper. On this ink absorbing layer, the cast gloss layer containing the pigment and aqueous binder for making gloss give is formed. This cast gloss layer is the spreading side which carried out coagulation processing using the coagulation liquid which dissolved the coagulant. And it is cast coated paper which it comes to stick to the metal side of mirror plane finishing which had this cast gloss layer heated while said cast gloss layer was in the damp or wet condition by pressure. The amount of coating of the above-mentioned ink absorbing layer was attained by the cast glossy paper for ink jet record which Hayes in within the limits of 5 - 15 g/m² controls to 70% or less, and is characterized by being the porous composition silica whose pigment of an ink absorbing layer is the particle diameter of 2-15 micrometers. Thus, it is not necessary to raise record image concentration and image quality, and to worsen an ink blot by setting the amount of coating as the range of 5 - 15 g/m², and to reduce record image concentration by making Hayes of the ink absorbing layer itself 70% or less.

[0017] As a pigment contained in the ink absorbing layer of this invention, although synthetic silicas, such as a kaolin, talc, a calcium carbonate, a calcium lactate, hydroxyapatite, a zeolite, a mica, a titanium dioxide, clay, a zinc oxide, magnesium oxide, an aluminum hydroxide, an aluminum oxide, barium titanate, a barium sulfate, lead titanate, various stratified compounds, wood ceramic pulverized coal and an amorphous silica, and amorphous silica, etc. are mentioned, in this invention, at least one or more kinds can be suitably chosen and used out of these pigments.

[0018] If especially the cast coated paper of this invention is limited with an ink jet record form, the pigment to be used will have also among the above use of the pulverized coal of the synthetic silica which is porosity more desirable than the ink absorptivity. Furthermore, in consideration of the smooth nature of a glossy surface, it can be said that the porous composition silica which is the particle diameter of 2-15 micrometers is good. in addition -- the synthesis method of this silica -- a sedimentation type, a gel type, a CVD method, PVD, and MBE -- it is not limited although a large number [law, a hydrothermal crystallization method, a sol-gel method, etc.].

[0019] And as a transparency binder contained in the ink absorbing layer of this invention, polyvinyl alcohol, a polyvinyl acetal, a polyacrylonitrile, polyurethane, etc. are mentioned. In this invention, although it can be used choosing suitably from these binders

and two or more sorts may be used together, use of transparency to polyvinyl alcohol is especially desirable to the ink absorptivity and binding capacity, and a pan.

[0020] The cast coating liquid formed on this ink absorbing layer at the coating liquid list which forms the ink absorbing layer in this invention is usually prepared as aqueous coating liquid. About the pigment in this coating liquid, and the mixing ratio of a binder, although it depends also on the thought of coat paper designs, such as physical properties to which the coat paper made into a pigment kind, a binder kind, coating conditions, or the purpose should be added, if it is in the criteria as which the physical properties of the coat paper obtained are required, it will not be limited especially.

[0021] In the coating liquid in this invention, the following assistants can also be added if needed. That is, a dispersant, a water retention agent, a thickener, a defoaming agent, antiseptics, a color, a deck-watertight-luminaire-ized agent, fluorescent dye, a preservative, an ultraviolet ray absorbent, a release agent, lubricant, and the various assistants of an organic cation agent can be added.

[0022] The following [method / coating] are mentioned. Coating methods, such as a blade coating machine, an air knife coater, a roll coater, a comma coating machine, a curtain coating machine, a bar coating machine, and a spin coater, can be chosen suitably, and can be used.

[0023] The following [method / the / desiccation] are mentioned in the desiccation process after coating. Although there are an infrared drying, hot air drying, ordinary temperature desiccation, etc., the above-mentioned desiccation method can be chosen suitably and can be used.

[0024] About the amount of coating of the ink absorbing layer in this invention, when there are few amounts of coating of a cast gloss layer, the ink blot depended badly [ink absorption] comes to take place, and in many, the printing concentration of the record image section comes to fall, and a productivity slowdown arises from the reasons of the desiccation load increase in a desiccation process etc. Furthermore, it comes to receive economical disadvantageous profit. Therefore, the amount of coating of an ink absorbing layer has desirable 5 - 15 g/m².

[0025] Moreover, cast coating liquid contains colloidal silica and, as for the particle diameter, it is desirable that it is 20nm or less. In addition, when this particle diameter deviates from the above-mentioned range, it becomes cast coated paper of a mat tone without a feeling of gloss in many cases. If the smooth nature on the front face of coat paper falls, while an exterior and a high-class feeling will fade away, a result which spoils greatly the reason which cannot secure the repeatability of a faithful dot, and a quality of printed character is also brought.

[0026] And as a binder of the colloidal silica in this cast coating liquid, at least one or more sorts can be chosen from things, such as casein, gelatin, urethane, polyvinyl alcohol, and methyl cellulose. If gelation, the ease of obtaining of operability and a gloss layer, etc. are synthesized and taken into consideration, it can be said to be an ingredient with more desirable casein. Moreover, about this amount, the five to 30 section is desirable to the colloidal silica 100 weight section.

[0027] A glossy surface will not be formed if there are few amounts of this binder than the above-mentioned range. Moreover, if many [conversely / too], although a glossy surface is made, a quality of printed character will deteriorate. That is, printing concentration falls or the sharpness of the streak section boundary of the record image

section is spoiled. Furthermore, the cast coating liquid which is not gelled at the time of cast coating comes to come out, and it is obliged to supply of superfluous heat energy from the point of a desiccation load, and also comes to cause the fall of productivity. [0028] When there are few amounts of coating of a cast gloss layer, a good glossy surface is not acquired, and about the amount of coating of the cast gloss layer in this invention, in many, it produces the poor coagulation of a cast gloss layer, and a productivity slowdown arises from the reasons of the desiccation load increase in a desiccation process etc. Furthermore, it comes to receive economical disadvantageous profit. Therefore, although the amount of coating of an ink absorbing layer has desirable 5 - 15 g/m², the further suitable conditions are 5 - 10 g/m². However, since the effect of the presentation of cast coating liquid, solid content, water retention, viscosity, temperature, SP value, etc. is received in the absorbed amount of conditions, such as air permeability, an absorbed amount, smoothness, the U.S. tsubo, and a consistency, or an ink absorbing layer, void volume, air permeability, surface roughness, cast gloss bed density and thickness, and a pan whenever [size / of stencil paper] about this condition, the above-mentioned range is not absolute.

[0029] Although the water solution of the metal salt chosen from calcium, zinc, magnesium, aluminum, etc. which contains a kind at least can be applied as a coagulant used when forming the cast gloss layer in this invention when using a metal salt, use of formic-acid calcium or formic-acid zinc is desirable still more suitably [a divalent alkaline earth metal which the formic acid configured by comprehensive evaluation of the solubility to water a salting out effect coagulation ability, etc., etc., or transition metals] desirable.

[0030] Although a formula, solid content, the amount of coating, etc. of coating liquid need to adjust the concentration of the metal salt as said coagulant, in this invention, the following conditions are mentioned as range which does not have trouble in the quality of coat paper, shelf life, and cast coating fitness. That is, 0.5 - 5.0 % of the weight is 1.0 - 3.0 % of the weight desirable still more suitably in coagulation liquid.

[0031] When using an organic cation agent together with a metal salt, as said coagulant to an organic cation agent Polyvinylbenzyl trimethyl ammonium halide, polydiallyl ammonium halide, A poly dimethylaminoethyl methacrylate hydrochloride, polyethyleneimine, A cyanogen amide formalin condensate, EPIKURORUDOH drine compounds denaturation poly alkylamine, Cationic resin, such as polyalkylene polyamine, such as polyvinyl pyridinium halide, and polyethylene polyamine, polypropylene polyamine, or a derivative of those, acrylic resin that has the 3rd class amino group and the 4th class ammonium, and a JIAKURIRU amine, can be added. Here, description is the gestalt of the ammonium salt which is easy to ionize in a drainage system on cast coating operability so that an organic cation agent may wish.

[0032] Although the concentration of the organic cation agent as said coagulant depends also on the concentration of formic-acid calcium, the class of cation agent which combines, and blend ratio which are used together, the following conditions are mentioned as range where the AUW concentration of an organic cation agent does not have trouble in the quality of coat paper, shelf life, and cast coating fitness. That is, 1.0 - 5.0 % of the weight is desirable in coagulation liquid.

[0033] If an organic cation agent is used as a coagulant in the above range, the cast gloss layer surface reinforcement which is the fundamental physical properties of coat paper,

and glossiness will serve as an outstanding property. Moreover, it becomes what also has the shelf life of printing concentration, a color tone, and the record image section good [the quality of printed character of the record image section]. However, a fall and water resisting property of printing concentration come to be inferior in the amount of an organic cation agent being under this range.

[0034] On the contrary, when the amount of an organic cation agent exceeds this range, a color tone, poor ink absorptivity, and lightfastness come to be inferior. moreover, the cast drum at the time of cast coating operation -- it sticks and a phenomenon happens.

[0035] In addition, acid paper, alkaline paper, etc. which are used for coat paper with the general stencil paper which serves as the base on the occasion of coating are used suitably. And although it depends also on the purpose of use, if the printing fitness of an ink jet is considered, the paper base constituted with pulp in consideration of the ink absorptivity will be desirable. As a pulp kind, non-wood pulp, such as LBP, NBKP, GP, TMP and corrosion gage point, wood pulp, such as DIP, and a kenaf, and a cotton, etc. is mentioned, and what used various additives, such as a binder and a sizing compound, and a yield improver, a paper reinforcing agent, for this pulp sheet more than a kind, and was mixed can be used. Furthermore, about pulp, use of ECF from the point of an environmental problem or TCF pulp is desirable.

[0036]

[Example] Although the example of this invention is given and explained below, this invention is not limited to these examples. Moreover, especially the section and % that are shown in an example show the weight section of solid content, and weight %, unless reference is made.

The stencil paper used as the <contents of base material> base material is the following specifications. For the U.S. tsubo 127 g/m², thickness-of-paper [of 130 micrometers], and Beck smoothness 50 seconds, it is air permeability 16.3 seconds, and consists of wood pulp.

[0037] Coating of the coating constituent which uses a porosity inorganic pigment and a binder as a main truss product was carried out on the example 1 <coating of ink acceptance layer> this base material, and the ink acceptance layer was obtained. The coating constituent mixed and obtained the polyvinyl alcohol (PVA-117: Kuraray Co., Ltd. make) 60 section of marketing of commercial synthetic amorphous silica (SAIRISHIA 470: product made from Fuji SHIRISHIA) as the 100 sections and a binder as a porosity inorganic pigment. The solid content concentration of this coating constituent is 16%. This coating constituent was dried with the air dryer coating and after that on the base material so that it might become oven-dry-weight 10 g/m² in an air knife coater, and the ink acceptance layer was obtained.

[0038] As a <preparation of cast gloss layer coating liquid> pigment, the casein 10 section was prepared as the colloidal silica (gold [a silica / 20]: Nippon Chemical Industrial Co., Ltd. make, particle diameter of 10-15nm) 100 section, and a binder, the calcium stearate (Sannopuko make, NOPUKOTO C104) 2 section and the Turkey-red-oil 2 section were prepared as a release agent, and cast liquid of 20% of concentration was obtained.

[0039] The coagulation liquid which will contain a cation agent by the time it sticks <coating of cast gloss layer coating liquid> this cast gloss layer coating liquid to the heated machined surface which carried out coating on the base material by pressure so

that it may become oven-dry-weight 10 g/m² in a roll coater is applied to this coating film. Then, the cast was carried out and the glossy paper for ink jet record was obtained.

[0040] It is the water solution which mixed 5% (trade name: PAPIOGEN P-103, product made from SENKA) of dimethylamine epichlorohydrin system resin <presentation of coagulation liquid> formic-acid calcium 1%.

[0041] It applies to an example 1 except having used it in the example 2 ink absorbing layer, having chosen P-78F (the Mizusawa chemistry company make) as the commercial porous composition silica.

[0042] It applies to an example 1 except having changed the example 3 ink absorbing layer into 5 g/m².

[0043] It applies to an example 1 except having changed the example 4 ink absorbing layer into 15 g/m².

[0044] In example 5 ink absorbing layer, it applies to an example 1 except having changed polyvinyl alcohol with the ten sections.

[0045] In example 6 ink absorbing layer, it applies to an example 1 except having changed polyvinyl alcohol with the 100 sections.

[0046] In example 7 ink absorbing layer, it applies to an example 1 except having substituted the gelatin (trade name: CLV, Nitta gelatin company make) 60 section for the polyvinyl alcohol 60 section.

[0047] In example 8 ink absorbing layer, it applies to an example 1 except having substituted the urethane (trade name: IJ-2, Dainippon Ink make) 60 section for the polyvinyl alcohol 60 section.

[0048] It applies to an example 1 except having changed the colloidal silica in example 9 cast coating liquid into gold [a silica / 40 (the Nippon Chemical Industrial Co., Ltd. make, particle diameter of 15-20nm)].

[0049] It applies to an example 1 except having changed the casein in example 10 cast coating liquid with the five sections.

[0050] It applies to an example 1 except having changed the casein in example 11 cast coating liquid with the 30 sections.

[0051] It applies to an example 1 except having substituted for the casein in example 12 cast coating liquid with the gelatin (trade name: CLV, Nitta gelatin company make) 5 section.

[0052] It applies to an example 1 except having substituted for the casein in example 13 cast coating liquid with the gelatin (trade name: CLV, Nitta gelatin company make) 30 section.

[0053] It applies to an example 1 except having used the example 14 coagulation liquid presentation as the water solution which mixed 1% of formic-acid zinc, and 5% (trade name: PAPIOGEN P-103, product made from SENKA) of dimethylamine epichlorohydrin system resin.

[0054] It applies to an example 1 except having used it in the example of comparison 1 ink absorbing layer, having chosen SAIRISHIA 430 (product made from Fuji SHIRISHIA) as the porous composition silica.

[0055] It applies to an example 1 except having used it in the example of comparison 2 ink absorbing layer, having chosen P-78D (the Mizusawa chemistry company make) as the commercial porous composition silica.

[0056] It applies to an example 1 except having used it in the example of comparison 3

ink absorbing layer, having chosen BY-001 (Japanese silica company make) as the commercial porous composition silica.

[0057] Except that the binder configuration changed PVA-117 into the example of comparison 4 ink absorbing layer with the ten sections and the ethylene vinyl acetate (EVA AD-6, Showa High Polymer Co., Ltd. make) 40 section, it applies to an example 1.

[0058] Except that the binder configuration changed PVA-117 into the example of comparison 5 ink absorbing layer with the five sections, it applies to an example 1.

[0059] Except that the binder configuration changed PVA-117 into the example of comparison 6 ink absorbing layer with the 150 sections, it applies to an example 1.

[0060] In example of comparison 7 cast coating liquid, it applies to an example 1 except having changed casein with the three sections.

[0061] In example of comparison 8 cast coating liquid, it applies to an example 1 except having changed casein with the 50 sections.

[0062] It applies to an example 1 except having substituted for the casein in example of comparison 9 cast coating liquid with the gelatin (trade name: CLV, Nitta gelatin company make) 3 section.

[0063] It applies to an example 1 except having substituted for the casein in example of comparison 10 cast coating liquid with the gelatin (trade name: CLV, Nitta gelatin company make) 50 section.

[0064] It applies to an example 1 except having used example of comparison 11 coagulation liquid as 6% water solution of calcium lactates.

[0065] It applies to an example 1 except having changed the example of comparison 12 ink absorbing layer into 3 g/m².

[0066] It applies to an example 1 except having changed the example of comparison 13 ink absorbing layer into 20 g/m².

[0067] It applies to an example 1 except having changed into the colloidal silica of example of comparison 14 cast coating liquid at Snow tex ST-UP (the Nissan Chemical Industries, Ltd. make, particle diameter of 100nm).

[0068] Thus, the result of the Hayes measurement of the feeling of blank paper gloss of the obtained cast coated paper, ink jet record fitness, (image recording concentration and an ink blot), operability, cast gloss layer surface reinforcement, and an ink absorbing layer was summarized in Table 1. In addition, the following point and an approach estimated about the above-mentioned evaluation.

[0069] (Feeling of blank paper gloss)

Viewing estimated.

O a feeling of feeling fitness of :gloss **:gloss -- with [it is the level x:mat tone which is not a problem practically, and] no feeling of gloss although it is a little low.

[0070] (Image printing concentration and ink blot) It printed in the color ink of 2500CPs of Hewlett Packard, and viewing estimated ink concentration and a blot.

O : -- printing concentration (or blot) -- very much -- fitness O:printing concentration (or blot), fitness **:printing concentration, and ** -- the level x:printing concentration which is not a problem practically although it is low (or it permeates and is a little bad) -- the level [0071] which does not bear practical use low (or bad [a blot]) (Mold-release characteristic) The coat paper which separates from a cast plate stuck, and viewing estimated condition.

O :mold-release characteristic fitness ** : a mold-release characteristic and a poor

***** x:mold-release characteristic [0072] (Cast gloss layer surface reinforcement) The cellophane tape investigated the surface reinforcement of an ink absorbing layer. After pasting up the cellophane tape on the cast gloss layer front face, it was made to exfoliate, and it judged from the amount of an affix attached to the tape.

O x which is [whenever / :surface on-the-strength fitness **:surface strong] a little inferior : surface on the strength [poor] [0073] (Ink absorbing layer Hayes measurement) The ink absorbing layer was established in the bright film, and the Hayes was measured with the Nippon Denshoku Industries turbidity meter (300A). And the Hayes value of an ink absorbing layer was computed by having deducted Hayes of a bright film.

[0074]

[Table 1]

[0075]

[Effect of the Invention] the cast glossy paper for ink jet record applied to this invention a passage clear from the result of Table 1, and its manufacture approach -- a surface feeling of gloss -- high -- ink jet fitness (record image concentration and ink blot) -- excelling -- in addition -- and cast operability and surface reinforcement were also good. Especially this invention was a thing excellent in the printing concentration in the record image section also in the property of the ink jet recording paper.